



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/617,749	07/17/2000	Jerry McKinney	Clearstrm-6	8682

7590 11/10/2003

C James Bushman
Browning Bushman
5718 Westheimer Suite 1800
Houston, TX 77057

EXAMINER

BARRY, CHESTER T

ART UNIT	PAPER NUMBER
----------	--------------

1724

DATE MAILED: 11/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/617,749

Applicant(s)

MCKINNEY, JERRY

Examiner

Chester T. Barry

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-10,17 and 20-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-10,17,20-27 and 29-33 is/are rejected.
- 7) ☒ Claim(s) 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 1724

35 USC §112, 2nd paragraph

Claim 8 is rejected under 35 USC §112, 2nd paragraph, for failing to particularly point out and distinctly claim the subject matter for which patent protection is sought.

Claim 8 recites a "first component" as well as "first and second components." It appears that "second and third components" were intended. Please increment the ordinal numbering of each subsequently recited component as required.

Claims 4 – 6 are rejected under 35 USC §112, 2nd paragraph, for failing to particularly point out and distinctly claim the subject matter for which patent protection is sought. Claims 4 – 6 depend from a cancelled claim, i.e., claim 3. It is suggested that claim 4 be re-presented in independent form. Please also note that neither claim 1 (nor claim 3) provides antecedent basis for claim 4's recitation of "said oxygenation gas injecting means."

Claims 32 – 33 are rejected under 35 USC §112, 2nd paragraph for failing to particularly point out and distinctly claim the subject matter for which patent protection is sought. Claim 32 recites that a current pattern comprises an injection system. While it is clear how a current pattern may be described as comprising a first, second, or other flow component, it is unclear what is meant by a "pattern" comprising a structural element, e.g., an "injection system."

Claims 1, 4 – 6, 17, 7, 8, 9 are rejected under 35 USC §112, 2nd paragraph for failing to particularly point out and distinctly claim the subject matter for which patent protection is sought. Each of claims 1, 7 – 9 recites the expression, “the opposite side wall to the bottom.” There is no “opposite side wall.” There is, however, a portion of the single side wall that is opposite the position of the first component. It is suggested that “the opposite side wall to the bottom” be changed to “said [the] side wall opposite said first component to the bottom.”

35 USC §112, first paragraph / 35 USC §132

The specification is objected to under 35 USC §112, first paragraph, lack of written description, and under 35 USC §132, for insertion of new matter. The last sentence added to the paragraph beginning at column 5 line 12 adds the following new matter: The understanding that Fig 5 indicates a flow pattern created by multiple “diffuses” [sic, diffusers]. While various portions of the original specification discuss multiple droplines and/or multiple diffusers, e.g., col 3 lines 56 – 60 or col 6 line 17 – 25, there is no indication that applicant understood Fig 5 to depict a flow pattern that resulted from use of multiple diffusers. The brief description of Fig 5 (col 4 line 16) merely refers to it as a pattern of a preferred embodiment without specifying whether it employed the use of multiple diffusers.

Art Unit: 1724

37 CFR 1.121

Claim 10 is objected to under 37 CFR 1.121 as failing to properly indicate claim amendments. Claim 10 as issued had several indented paragraph separated by commas [“ , ”]. Claim 10 now shows deletion of at least one such indented paragraph, said paragraph ending with a period [“ . ”] rather than the comma. Applicant is urged to retain the use of commas in separating indented paragraphs of a claim, or adopt semi-colons, but do not turn to periods. Please also indicate the presence of the commas even if they fall within deleted paragraphs. The printed reissue claim from which at least one indented paragraph as been deleted by amendment should show a deleted comma and not a deleted period since no such period (other than the last period) appeared in the original patent claim.

Minor Objections

The specification is objected to for a minor typographical error: At col 6 line 12, “discovered” appears where it appears that – disconnected – was intended to have appeared.

35 USC Sec102(e)

Claim 1 is rejected under 35 USC Sec102(e) over Adams for the reasons of record.

Response to Arguments:

Art Unit: 1724

Applicant distinguishes at least claim 1 from Adams in part on the grounds that Adams does not disclose that "all of the solids are maintained in suspension in the aeration chamber" (substitute amendment at page 10). It is noted that claim 1 does not require that "all of the solids [in the aerated portion of the wastewater treatment plant] are maintained in suspension." In this respect, Claim 1 requires only that "all solids suspended within the plant are forced into circulation." Claim 1 permits some solids to be completely settled into dead zones. Claim 1 merely requires that those solids which ***are suspended*** be forced into circulation.

Applicant mischaracterizes the examiner's position concerning Adams. Applicant says that the examiner's position is that "Adams teaches that there is sufficient aeration gas flow or that the 'differential imbalance' maintains all solids suspended within the plant" (substitute amendment filed 5/30/03, at page 10). In contrast, in the Office action mailed 11/30/01, at page 9, the examiner stated:

The [Adams] aeration system provides sufficient recirculation liquid flow . . . such that all solids suspended within the plant are forced into circulation.

Moreover, contrary to applicant's implication at page 11, claim 1 does not require prevention of settling of solids below the clarifier or ensure that all solids stay suspended in the aeration chamber.

Applicant agrees that Adams "teaches that the horizontal sweep velocity ***prevents settling*** under the clarifier" (emphasis added).

Accordingly, the rejection is maintained.

Art Unit: 1724

35 U.S.C. §103(a)

Claims 1, 4, 5, 7, 8, 9, 10, 17, 20-24, 25-27, 29-33 are rejected under 35 USC §103(a) as being unpatentable for obviousness over applicant's earlier patent USP 5221470 ("McKinney '470") alone or further in view of Adams '459, or over McKinney '470 in view of applicant's admissions regarding the state of the prior art and Adams.

McKinney '470 describes an aerobic wastewater treatment plant comprising a vessel (10)¹ defining an aeration chamber (20) containing aerobic bacteria into which wastewater containing organic solids flows to be exposed to aerobic bacteria to aerobically digest the organic solids in the wastewater. The aeration chamber has a substantially flat bottom wall (A)² and a cylindrical side wall (10). McKinney '470 also describes an aeration system in the aeration chamber to support growth of the aerobic bacteria. McKinney '470 also describes a clarifier chamber formed in the vessel and into which wastewater from the aeration chamber flows upwardly toward an outlet pipe (30) through which the wastewater flows from the wastewater treatment plant. The clarifier chamber is defined by a partition in the form of an inverted, truncated cone (18) into the bottom of which (clarifier opening 26) the wastewater flows from the aeration chamber. The aeration system forms an aeration area adjacent the intersection of the bottom and side walls of the vessel. During periods in which one of the two diffuser is taken off line by closure of valve 42 or 44,³ the aeration system provides sufficient recirculation liquid flow (by dint of sufficient aeration gas flow) such that all solids

¹ Numeric reference numerals refer to the reference numerals as shown in the McKinney '470 patent. Alpha reference notations refer to the examiner annotations to the drawings in McKinney '470.

² While McKinney '470 does not describe a substantially flat bottom wetted surface by virtue of the conic-shaped wetted surface of the deflector, a substantially flat bottom wall of the vessel is clearly shown. It is on this substantially flat bottom wall that the deflector is attached. See Fig. 3. *infra* ("A").

Art Unit: 1724

suspended within the plant are forced into circulation. Inherently, during shut-off of one of the two diffusers, a current pattern having at least one first component flowing upwardly in a direction perpendicular to the bottom wall of the vessel and parallel to the side wall of the vessel, second and third components that flow in opposite directions around the partition which defines the clarifier chamber, a fourth component that flows along the opposite side wall to the bottom, and sixth and seventh components that flow in opposite directions adjacent the bottom wall of the vessel is induced by the aeration gas flow. The aeration system provides sufficient oxygenation gas to allow the aerobic bacteria to digest the organic solids in the wastewater. It is unclear if the current pattern induced by the aeration gas flowing through only one of the two diffusers has a fifth component that flows across the bottom under the opening to the clarifier chamber. That is, it is unclear if a current component rises up over a portion of the deflector 27 underlying clarifier opening 26 and back down the opposite side of the deflector towards the solitary operational diffusers without being swept up into the clarifier proper given the hydraulic driving force present at times when wastewater is actually flowing⁴ into the treatment plant through inlet 24. Furthermore, it is unclear during periods of no wastewater influx whether currents flowing across the bottom wall would rise up over at least a portion of the deflector underlying the clarifier opening, as shown by arrow "A" in Fig. 1 *infra*, or if the "cross-flow" would simply separate laterally into two branches "B" at

³ See the discussion of this point from the previous Office action.

⁴ The skilled artisan would have realized that wastewater feed rate depends on the rate of waste water generation at the source. Such rate is neither constant nor continuous. For example, during periods of vacancy, the wastewater flow rate from the source, e.g., residence, would have been expected to be zero.

Art Unit: 1724

the intersection of the deflector and the bottom wall, as shown by arrows "B" in Fig. 2 *infra* (without any split flow lying underneath clarifier opening 26).

In the background section of this reissue application, Applicant described "a second basic design" of treatment plant known in the art. Applicant said,

The second basic design of treatment plants includes a partition that is shaped like an inverted, truncated cone. This partition divides the tank into the two chambers, an outer aeration chamber and an inner clarifier chamber. This design *may* also incorporate a pyramid shaped deflector placed beneath the truncated conical partition to deflect solids settling out of the clarifier chamber back into the aeration chamber for further bacterial digestion.

(emphasis added). Applicant, therefore, admitted that provision of a pyramid shaped deflector plant in this type of prior art treatment plant, such as that exemplified by the McKinney '470 patent, was merely optional. It would have been obvious, therefore, for the skilled artisan to have omitted from the McKinney '470 treatment plant the deflector in view of the recognition in this art, as shown by applicant's admission, that such deflectors were merely optional.

Alternatively, it would have been obvious to have omitted the deflector from the McKinney '470 design because USP 5766459 to Adams teaches the desirability of inducing a "horizontal sweep . . . across the bottom 36" (Adams, col 3 line 33) to prevent sludge buildup. The claimed invention reads on this suggested embodiment when one diffuser is taken out of service for repair.

Alternatively, and with particular relevance to claim 17, it would have been obvious to have intentionally imparted a differential imbalance to the two McKinney diffusers and to have removed the deflector because Adams teaches the desirability of

Art Unit: 1724

inducing a "horizontal sweep . . . across the bottom 36" (Adams, col 3 line 33) to prevent sludge buildup beneath the clarifier opening. As admitted by applicant in this application, it was known that solids tend to accumulate near the base of deflectors (col. 2 line 29). Accordingly, in addition to Adams suggestion to not use deflectors, the skilled artisan would have been further motivated to remove the deflector from the McKinney '470 system in view of the recognition in the art that solids tended to accumulate at the base of the deflectors.